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## Anger communication in deaf children

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In this study, we investigated how deaf children express their anger towards peers and with what intentions. Eleven-year-old deaf children ( $n=21$ ) and a hearing control group ( $n=36$ ) were offered four vignettes describing anger-evoking conflict situations with peers. Children were asked how they would respond, how the responsible peer would react, and what would happen to their relationship. Deaf children employed the communicative function of anger expression differently from hearing children. Whereas hearing children used anger expression to reflect on the anguish that another child caused them, deaf children used it rather bluntly and explained less. Moreover, deaf children expected less empathic responses from the peer causing them harm. Both groups did, however, expect equally often that the relationship with the peer would stay intact. These findings are discussed in the light of deaf children's impaired emotion socialization secondary to their limited communication skills.

Although the results of research have often indicated that deaf children have impaired emotional competence, this effect has typically just concerned their ability to label and understand the causes of emotions (see Rieffe & Meerum Terwogt, 2002). Yet emotional competence involves a broad complexity of elements (Saarni, 1999), including awareness of one's own and others' emotions and the regulation of emotions. The focus of this research is on one aspect of emotion understanding that plays an important role in the initiation and continuation of children's peer relationships: the communication of anger.

A relative lack of emotional competence in deaf children has been closely linked to their well-documented theory-of-mind difficulties (see Peterson &

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Siegal, 2000). It is frequently noted that deaf children have difficulties acknowledging that different people can hold different mental states regarding the same situation (Peterson & Siegal, 2000). The consequences of these difficulties can be inferred from deaf children's problems in relationships with peers. When compared with hearing peers, deaf children seem socially less competent in their interactions with peers, either hearing or deaf. For example, studies have shown that deaf children feel more neglected and less accepted by other children and that they behave more dependently and show less self-confidence (Bat Chava, 1993; Desselle, 1994; Montanini Monfredi, 1993; Yachnik, 1986). Furthermore, although it appears that deaf children initiate interactions as often as hearing children (Vandell & George, 1981), they are subsequently more likely to be rejected by their peers (Cappelli, Daniels, Durieux-Smith, McGrath, & Neuss, 1995). Thus, it is not the initial contact but sustaining that contact that seems to be a particular challenge for deaf children.

Deaf children's friendships also appear to proceed less smoothly than those of hearing children. Deaf children have more difficulties in making friends and they are less likely to have a friend in the classroom. Importantly, it is not just a matter of problematic relationships between the deaf and the hearing community: Deaf children's friendships with deaf peers are also less stable than those among hearing children (Lederberg, Rosenblatt, Vandell, & Chapin, 1987; Nunes, Pretzlik, & Olsson, 2001). This circumstance might be because they show less understanding of social rules and goals in friendship (Rachford & Furth, 1986) and because they attribute more hostile intentions to others (Murdock & Lybarger, 1998).

An important element in the regulation of relationships is the use of emotions. Through the course of development, children learn to mask the expression of their emotions to situational circumstances in accordance with cultural display rules (Malatesta & Haviland, 1982). These display rules can be aimed at various goals, such as protecting one's self-image or protecting relationships. By about age ten, the social interaction patterns of normally developing children are already strongly regulated by a number of largely implicit display rules (Saarni, 1999). In contrast, deaf children have been found to mask their anger and happiness less frequently than hearing children (Hosie et al., 2000). Moreover, Hosie and colleagues (2000) found that deaf children's reasons for masking their true feelings were comparatively self-protective, whereas hearing children provided more reasons that were pro-social or concerned with norm-maintenance.

Anger expression is often perceived as maladaptive, e.g., as damaging to children's peer relationships (Gottman & Declaire, 1997). Consequently, research in this domain has usually concentrated on children's ability to hide

or suppress their anger (Saarni, 1999; Underwood, Coie, & Herbsman, 1992). Emotion theorists, on the other hand, concentrate on the functionality of emotions, including anger. From this perspective, the expression of anger is studied for its effectiveness in reaching certain objectives. Anger expression can be considered "justified" under certain circumstances and when there are socially accepted ways to express it. For example, a moderately intense anger response, which clearly expresses one's discord in reaction to a provocation or otherwise unjustified action, could be beneficial to the relationship because it aims to reinstate an earlier existing balance that had been disturbed (Pellegrini, 2002). Children who do not on occasion defend themselves weaken their position in the peer-group (Jenkins & Ball, 2000). Yet, expressing anger in a competent manner can be difficult. The finding that the expression of anger towards peers increases with age (Underwood, 1997; Underwood et al., 1992) indicates that older and presumably more emotionally competent children find it easier to manage their anger.

Not only do deaf children show more anger than hearing children (Hosie et al., 2000), they may do so in a less constructive way, including with respect to the continuation of positive peer relationships. In this study we want to investigate *how* deaf children express their anger towards peers and with what intentions. Therefore, we asked deaf and hearing children how they would express themselves towards the responsible actor in anger-evoking situations with peers. Four vignettes were designed in which a friend or a classmate treated the child poorly, with no apparent justification. Children were told that they would feel angry and were then asked a series of questions designed to assess their use of anger-related responses. In line with previous research, we focused on deaf children of elementary school age, whose level of Sign-Supported Dutch would be sufficient for understanding the vignettes that were used in this study (Meerum Terwogt & Rieffe, 2004a; Rieffe & Meerum Terwogt, 2000; Rieffe, Meerum Terwogt, & Smit, 2003).

It was expected that, compared with hearing children, deaf children would express their anger more bluntly and less constructively (e.g., with less strategic consideration of how to resolve the conflict). Consequently, deaf children's reactions were expected to evoke stronger negative reactions from the other party, even in terms of long-term effects (relational damage). Another possibility was that deaf children would fail to anticipate the effect of their own reactions on other people. In that case, we expected deaf children to be less internally consistent with their responses than their hearing peers. Finally, as girls are known to be usually less blunt and more strategic in their expression of anger (Timmers, Fischer, & Manstead, 1998), gender effects were also examined.

## Method

### *Participants*

Twenty-one severely and profoundly deaf children and 36 hearing children participated in this study. The group of deaf children consisted of 12 boys (mean age 12 years and 1 month, range 11 years 3 months to 12 years 10 months) and 9 girls (mean age 11 years and 4 months, range 10 years 5 months to 12 years 4 months) who came from a primary school for the deaf (Effatha). All children were audiological diagnosed as being profoundly deaf: 2 children had no measurable hearing and the mean hearing loss of the remaining 19 children was 112.37 dB ( $SD = 8.23$ ) in the better ear. All but one child had entered the kindergarten of this school for the deaf when they were 3 years old; the remaining child entered at 4 years of age.

All teachers at Effatha communicate in Sign-Supported Dutch (SSD), which most deaf children also use amongst themselves. The school psychologist judged the SSD skills of the children as 16 "good", 3 "average", and the remaining 2 as "poor". Apart from their deafness, they had no other known handicaps. The deaf children participated in a standard educational programme, which typically requires average intelligence. To confirm that the deaf children were indeed of average intelligence, IQ assessments by the school psychologist were used. Eight children were tested with the SON-R (a standard Dutch non-verbal intelligence test), and thirteen with the nonverbal WISC-R test. The mean IQ score was 103.33 ( $SD = 17.48$ , range 80–137). All but one child had hearing parents, and most parents use SSD to communicate with their deaf child.

The control group of 36 hearing children consisted of 20 boys (mean age 11 years and 1 month, range 9 years 8 months to 12 years 10 months) and 16 girls (mean age 11 years and 1 month, range 9 years 8 months to 12 years 1 month). IQ was not assessed, but their teachers described all hearing participants as having normal intelligence. The mean age of the hearing group was slightly younger than the deaf group, a difference which should work to the advantage of the deaf children. Parental consent was obtained for all children.

### *Material*

The material consisted of four stories (see Table 1), which described negative emotion-eliciting situations. In each story, the participant was emotionally harmed by a friend or by classmates with whom [s]he had planned an activity. After telling each story, it was said that the participant would feel angry. For example:

TABLE 1  
Degree of anger evoked per story

<i>Vignette</i>	<i>M</i>	<i>SD</i>
Other child spills cola over protagonist's clothes and hair while going to party	3.54	1.00
Other child ruins protagonist's highest score on computer game	3.05	1.14
Other child misses appointment with protagonist to do homework together	2.74	1.09
Two classmates go swimming, protagonist waits in vain and goes home	2.74	0.99

*Note:* Minimum score = 1, maximum score = 5 for each vignette.

Today, you arranged to meet with two boys [girls] from your class to go to the swimming pool after school time. When you arrive at the place that you are supposed to meet, you can't find them. You wait a little while, but no one shows up. You feel disappointed and eventually, you cycle home. The next morning, you see these two boys [girls] on the school's playground. They walk up to you and tell you that they had so much fun in the swimming pool the other day. You feel very angry.

The following questions were asked after each story:

- What will you do or what will you say to these two boys [girls]? (1)
- How will these boys [girls] react? (2)
- So how, do you think, will it end? (3)

If the answer to this last question was unclear and could not readily be scored, a follow-up question was asked:

- Would you be friends again? (4)

And finally, children were asked:

- How angry would you feel if this happened to you? (5).

To answer this question, children were presented with a 5-point scale from which they could choose the most appropriate response.

### *Scoring*

*Initial response (Question 1).* Children's responses to the first question were categorised in terms of how socially constructive they were. Denial ("no problem") and aggressive (calling names, kicking) responses were considered *non-constructive*. Answers in which children gave an explicit negative judgement about the situation or their peers' behaviour, but lacked any further explanation were considered as *basic constructive* ("I don't like this" or "I'm angry" without further elaboration). If children gave an explicit negative judgement about the situation or their peers' behaviour, but also

explained what they did not like about the situation, the responses were coded as *advanced constructive*. Responses that fell into the three categories (non-constructive, basic constructive, or advanced constructive) were given a score of 1, 2 or 3, respectively. Collapsed over four stories, children could thus receive a minimum score of 4 and a maximum score of 12, whereby higher scores indicate more constructive responses.

*Reaction from the responsible actor (Question 2).* Children's responses to the second question were categorised according to whether the reaction they anticipated was *negative* (the responsible actor showed no sympathy: "Too bad for you" or "I don't care"), *neutral or unclear* ("Okay" or "It was only a joke"), or *positive* (empathic reactions in which the responsible actor tried to restore the calm or help or gave a plausible explanation). Responses that fell into the three categories (negative, neutral/don't know, or positive) were given a score of 1, 2 or 3, respectively. Collapsed over four stories, children could thus receive a minimum score of 4 and a maximum score of 12, whereby higher scores indicate a more empathic expected response.

*Continuation of the relationship (Questions 3 and 4).* Children's responses to the third and fourth questions were categorised according to whether they anticipated the relationship would end or continue. Children's responses that fell into the three categories (i.e., end, unclear, or continuation) were given a score of 1, 2 or 3, respectively. Collapsed over four stories, children could receive a minimum score of 4 and a maximum score of 12, whereby higher scores indicate a more positive outcome.

Based on the coherence among answers to these three questions, we distinguished two further categories: Answers were scored to the extent that *irrational* (for example, an answer to the first question was, "I will kick him", the response of the harming child was, "He would kick me back", and children then responded to questions 3 or 4 with, "We would be friends again", without any further explanation) or *rational* (for example, "I would be angry for a little while, but then we would talk about it and become friends again") processes had led to the continuation of the friendship.

Two raters coded all responses anonymously. The interrater agreement was 96% and disagreements were resolved by discussion.

## Procedure

Participants were tested individually and in privacy. The deaf children were tested by a non-familiar, hearing, female staff member using SSD. The sessions with hearing children were tape-recorded, whereas the sessions with

deaf children were both tape- and video-recorded. The deaf children's experimenter verbalised children's responses. Transcriptions were derived from the tapes after the sessions. A deaf person compared the written text with the video-recordings. No inaccuracies were found.

## Results

### *Degree of anger evoked*

A 2 (Group)  $\times$  2 (Gender)  $\times$  4 (Anger Stories) analysis of variance (ANOVA), which treated that last factor as a repeated measure, showed only a main effect for Anger Stories,  $F(3, 159) = 9.30$ ,  $p = .001$ , but not for Group,  $F(1, 53) = 1.01$ ,  $p = .320$ , or Gender,  $F(1, 53) = 2.74$ ,  $p = .104$ . The Group  $\times$  Gender interaction was also not significant,  $F(1, 53) = 0.31$ ,  $p = .582$ . Table 1 shows the mean scores per Anger story, collapsed over Group and Gender. In general, the stories evoked a reasonable amount of anger in children and thus appeared useful for the purpose of this study.

### *Initial reactions in anger-evoking situations*

Our first concern was the extent to which deaf children would react in a socially constructive fashion in response to a conflict situation with peers. The majority of deaf and hearing children explained the harm that was caused to the other child(ren) (79% and 91%, respectively). Aggressive (12% and 5%, respectively) or denying (8% and 3%, respectively) responses did not occur very often. Table 2 shows the mean scores of constructive responses by deaf and hearing children. A 2 (Group)  $\times$  2 (Gender) ANOVA showed a main effect for Group,  $F(1, 53) = 9.21$ ,  $p = .004$ , and Gender,  $F(1, 53) = 7.50$ ,  $p = .008$ . From Table 2 it can be seen that deaf children responded less constructively than their hearing children peers. Additionally, girls scored higher than boys, with deaf boys receiving particularly low scores. However, the Group  $\times$  Gender interaction was not statistically significant,  $F(1, 53) = 3.53$ ,  $p = .066$ .

TABLE 2  
Mean score on appropriate initial responses as a function of group and gender

Group	n	Boys		Girls		Total	
		M	SD	M	SD	M	SD
Hearing	36	10.80	1.76	11.19	1.87	10.97	1.80
Deaf	21	8.58	1.00	10.67	1.86	9.48	1.60
Total	57	9.97	1.94	11.00	1.61	—	—



TABLE 3  
Mean score on empathic responses as a function of Group and Gender

Group	n	Boys		Girls		Total	
		M	SD	M	SD	M	SD
Hearing	36	7.55	2.24	9.19	2.32	8.28	2.39
Deaf	21	6.25	1.96	7.56	2.07	6.80	2.06
Total	57	7.06	2.20	8.60	2.33	—	—

### *Reactions expected from actor responsible*

A 2 (Group)  $\times$  2 (Gender) ANOVA showed main effects for Group,  $F(1, 53) = 5.89$ ,  $p = .019$ , and Gender,  $F(1, 53) = 5.94$ ,  $p = .018$ . The Group  $\times$  Gender interaction was not significant,  $F(1, 53) = 0.08$ ,  $p = .785$ . The mean scores presented in Table 3 show that deaf children expected less empathic reactions than hearing children from the responsible actor. Additionally, boys expected less empathic responses than girls.

### *Expectations about relationship continuation*

With respect to children's expectations concerning the continuation of the relationship, a 2 (Group)  $\times$  2 (Gender) ANOVA showed no main effects for Group,  $F(1, 53) = 0.07$ ,  $p = .789$ , Gender,  $F(1, 53) = 0.23$ ,  $p = .637$ , or their interaction,  $F(1, 53) = 0.23$ ,  $p = .637$ . Both deaf and hearing children largely reported having positive expectations (68%).

With respect to the way that children came to their positive expectation of a continuous relationship, a 2 (Group)  $\times$  2 (Gender)  $\times$  2 (Outcome: rational or irrational) ANOVA with repeated measures over the last factor showed an interaction of Group  $\times$  Outcome,  $F(1, 53) = 11.88$ ,  $p = .001$ , but no main effects for Group,  $F(1, 53) = 0.13$ ,  $p = .724$ , Gender,  $F(1, 53) = 0.03$ ,  $p = .854$ , or a Group  $\times$  Gender interaction,  $F(1, 53) = 0.41$ ,  $p = .523$ . Table 4 shows that deaf children formulated more irrational than rational responses, whereas the opposite pattern was found for hearing children.

TABLE 4  
Proportion of rational response patterns as a function of Group

Group	n	Irrational		Rational	
		M	SD	M	SD
Hearing	36	0.15	0.23	0.54	0.36
Deaf	21	0.39	0.28	0.29	0.33

## DISCUSSION

The aim of this study was to examine how deaf and hearing children would communicate their anger towards peers in conflict situations. Using a vignette paradigm, the results confirmed our hypothesis that deaf children tend to communicate their anger rather bluntly. Whereas the vast majority of the hearing children made an attempt to explain their displeasure, almost half of the deaf children failed to do so. Furthermore, deaf children were more pessimistic about receiving an empathic response than hearing children. Nonetheless, deaf children proved to be equally optimistic with respect to the continuation of the relationship with the peer(s) involved. In most cases, both groups thought that the friendship would not be jeopardised by the event. Even when no action was taken to make up for the harm or to resolve the conflict, deaf children thought the conflict situation would not affect the continuation of their relationship. Thus, deaf children's judgements were less internally consistent.

As noted earlier, anger is often described as an unconstructive emotion, which should be suppressed or hidden (Jenkins & Ball, 2000; Pellegrini, 2002). Yet anger expression can have a functional aspect in maintaining balanced social relationships when expressed in a socially competent manner. Some studies suggest that deaf children show more blunt aggression (Murdock & Lybarger, 1998; Van Eldik, 1994), other results contradict this claim (Maxon, Brackett, & Van den Berg, 1991; Meerum Terwogt & Rieffe, 2004b). The current findings failed to support a more aggressive attitude in deaf children, in that their overtly aggressive reactions did not exceed those of their hearing peers. Nevertheless, their reactions to an angering event seemed less aimed at dealing with the situation effectively.

An expected finding was that deaf children expressed what harm had been done less frequently than their hearing peers. This outcome might be related to their purported theory-of-mind difficulties (Peterson & Siegal, 2000). Usually, bluntly expressing one's anger—as seen with deaf children—prompts the opponent to focus on his own position and strike back. The chances for an empathic reaction are clearly enhanced when the victim stresses how he or she is hurt by the event. Explaining the harmful effect may trigger a change of perspective, which is essential for an acknowledgement by the responsible actor (Barnett, King, & Howard, 1979) and for the consequent feelings of guilt (Rogers, Miller, Mayer, & Duval, 1982). Moreover, an explanation—even the most simplistic one—can be considered as social sharing (Rimé, Mesquita, Phillipot, & Boca, 1991) or self-disclosure (Buhrmeister & Prager, 1995), which, in addition, are both known to evoke empathy. Even when an excuse is not immediately given, at least an opening is created for a more constructive discussion.

Deaf participants showed a remarkable optimism with respect to future relations with their "opponents", expecting that their friendships would hold even when they assumed that their opponent would react negatively. One explanation for this seeming incongruity is that deaf children's interactions might follow different strategies than those of hearing children. They might accept one another's "social clumsiness" and react more bluntly to each other, explaining less about their feelings, showing less empathy, yet without jeopardising their relationship—as such behaviours would among hearing children (Asher & Rose, 1997). However, Lederberg et al. (1987) showed that deaf children's friendships with deaf peers are less stable than those among hearing children, which strengthens the idea that deaf children's expectations concerning the continuation of their friendships in this study were not quite realistic.

In addition to finding several differences between deaf and hearing children, a few gender effects were also observed. However, none of these gender differences interacted with the differences between deaf and hearing children. Although the emotional impact of the scenarios was the same for boys and girls, we found that girls were more likely to explain their anger and expect more empathic responses from their peers than boys. Both effects might be attributable to gender differences in the relative weight given to concern with the consequences of emotional expressions and favourable power balance (Timmers et al., 1998).

A possible objection to the results of this study is that they might be caused simply by differences in receptive and expressive language skills. The fact that language development affects social and emotional development has certainly played a role in these outcomes. Children with restricted language capacities have fewer possibilities to talk about emotions with knowledgeable others or to gain additional experience through reading. There is ample evidence for this connection: children with speech and language impairments have more emotional problems (Botting & Conti-Ramsden, 2000; Burgess & Bransby, 1990), especially if they experience expressive language problems (Ripley & Yuill, 2005). Since all but one of the children in the present study were raised in a hearing family environment, it is almost certainly the case that their communication possibilities were constrained, especially in the early stages of their development.

Nonetheless, the deaf participants' expressive and receptive language capacities were sufficient for the requirements of our study, and expressive language problems cannot account for deaf children's response patterns to the open-ended questions. Simple utterances like, "My T-shirt is dirty" or "I waited for you", are neither more complex nor require more expressive language skills than, "I am angry" or "I don't like this". Thus, although receptive and expressive language development likely contributed to the response pattern of deaf children, the differences from hearing children can

perhaps be better explained by anomalies in the development of communication factors like pragmatics and meta-linguistic awareness, which include an understanding of the impact of speech acts on others (Grice, 1975). Deficiencies within these areas have frequently been noted among deaf children (Ciocci & Baran, 1998).

In conclusion, the blunt expression of anger and impaired insight into the consequences of such behaviour fits in with a general picture in which deaf children are emotionally less competent than their hearing peers (Greenberg & Kusché, 1993; Marschark, 1993; Rieffe & Meerum Terwogt, 2002). Of concern are the bases for diminished competence and how such deficits can be prevented. A growing body of evidence shows the importance of "emotional coaching" (Gottman & Declaire, 1997). Elementary in emotional coaching is that parents help children to accept and label their emotions, to recognise and acknowledge emotions in others, and also help their children to develop coping strategies and interpersonal problem-solving skills. Impoverished emotional coaching has been found to be associated with less positive peer relationships (Hart, Ladd, & Burleson, 1990). Deaf children are unlikely to receive little emotional coaching within the family setting: Most deaf children (90%) have hearing parents whose sign language skills usually do not exceed those of a four-year-old, and it is known that these parents talk less about mental phenomena, such as emotions and their underlying causes, with their deaf children (Vaccari & Marschark, 1997). Unlike their hearing peers, deaf children also cannot profit from hearing other people's conversations and must rely more on autodidactic methods for their emotion socialization. If deaf children do not adequately understand the consequences of their behaviour, as was suggested by the overall pattern of their responses in the present study, they also have little opportunity to learn from their experiences. Explicitly adding emotional coaching to work with families and to the school curriculum seems essential, then, for fostering deaf children's socioemotional competence.

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